

9.01 Study Questions

Lecture 37-38: Higher functions and human nature

- 1) The CNS can be viewed as a multiple parallel processor of information. Describe some of the functional systems that we know are active simultaneously in mammals, including humans.
- 2) Are you able to make yourself aware of processes that are normally unconscious, i.e., processes that you normally ignore?
- 3) The lecturer used examples of multiple, parallel systems (subsystems) from studies of the visual system. Try to think of examples, however mundane, involving other sensory systems.
- 4) Describe the difference in split brain surgery between cats and monkey on the one hand and humans being treated in order to prevent the spread of epilepsy on the other.
- 5) Why can pointing by the two hands be used to communicate separately with the two hemispheres in a split-brain patient, whereas the speaking of words cannot?
- 6) In Julian Jaynes' test using mirror symmetric faces, why did most of the class say that the bottom face looked happier than the top face?
- 7) Why was it easier for Gazzaniga and LeDoux to study hemispheric differences in the patient "Paul", than in most other split-brain patients?
- 8) If the two hemispheres were functioning separately with no direct communication *via* the corpus callosum in Paul, why do you think they usually make very similar judgments of things (concerning likes and dislikes)? (Explain "cross-cuing" of one hemisphere by the other.)
- 9) How are the patient Paul's confabulations related to what people with unoperated brains do? (Think about the James-Lange theory of emotions, and about what part system in the CNS we normally identify with the most.)
- 10) How is the phenomenon of "automatic writing" similar to various phenomena observed in hypnotized people?
- 11) What is an indication that within yourself there are different systems which resemble different "selves"?
- 12) Gazzaniga and LeDoux argue that the verbal system, usually localized in the left hemisphere of the human brain, is the dominant system in the formation of self identity. What alternatives can you suggest?
- 13) What are "fugues" and how do they resemble hypnotic and other kinds of states?

- 14) Do you think you could detect something wrong if your brain were artificially stimulated by something you ingested without your knowledge? What factors would influence this detection?
- 15) Why might “insulin shock” (hypoglycemia induced by insulin injection) be a useful treatment for a depressed person?
- 16) Why does a person taking insulin injections often have great difficulty recognizing a state of abnormally low blood glucose?
- 17) Compare the treatment of multiple personality with normal development in humans.
- 18) Does self-consciousness depend on language ability? Cite human cases to support your answer.